REMARKS

A total of 58 claims remain in the present application. The foregoing amendments are presented in response to the Office Action mailed February 10, 2005, wherefore reconsideration of this application is requested.

Referring now to the text of the Office Action:

- claims 1-59 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over the teaching of Tektronix, Inc. "SONET Telecommunications", 1997

The Examiners claim rejections are believed to be traversed by the following discussion.

In support of the Examiner's rejections under 35 USC § 103(a), the Examiner asserts that the Tektronix reference teaches: "at the at least one intermediate node, where the intermediate node is the regenerator node, inserting the buffered PM information into the predetermined location within the signal prior to transmitting the data signal toward the second end node, b, wherein "Regenerator" p19 discloses that the regenerator replaces the Section overhead, which contains the PM information page 7, "Section Overhead", thereby reinserting the data by rewriting it to the new signal to be transmitted." With respect, the Examiner's interpretation of the SONET standard is incorrect.

At column 2, first full sentence, on page 7, "Overheads", the Tektronix reference states that: "Section overhead is used for communications between adjacent network elements, such as regenerators." Reference to the Glossary of the Tektronix reference is also instructive. At page 31, the flowing relevant definitions are found:

> **Section** – The span between two SONET network elements capable of accessing, generating, and processing only SONET Section overhead. This is the lowest layer of the SONET protocol stack with overhead.

Section Overhead – Nine bytes of overhead accessed, generated and processed by section terminating equipment. This overhead supports functions such as framing the signal and performance monitoring.

Section Terminating Equipment – Equipment that terminates the SONET Section layer. STE interprets and modifies or creates the Section Overhead.

Thus, the regenerator of Tektronix FIGs. 7, and 21 is explicitly described as an example of section terminating equipment (STE), which terminates the Section layer connection, and which "interprets and modifies or creates" the section overhead.

Referring to Table 3, byte B1 is defined as:

"Section bit interleaved parity code (BIP-8) byte – This is a parity code (even parity) used to check for transmission errors over a regenerator section. Its value is calculated over all bits of the previous STS-N frame after scrambling, then placed in the B1 byte of the STS-1 before scrambling."

The person of ordinary skill in the art will immediately recognise that the BIP-8 is one of the two defined performance monitoring (PM) octets in the section overhead. The other defined PM octet is the section trace (byte J0), which is well known to be used as a messaging channel between the two adjacent nodes for verifying connectivity across the section. As stated in table 3, the BIP-8 code's "value is calculated over all bits of the previous STS-N frame after scrambling". Since scrambling of the SONET frame occurs immediately prior to electrical/optical conversion, it is clear that the BIP-8 code's value is calculated over an outgoing frame, and inserted into the B1 byte of the next outgoing frame. As such, the Tektronix reference explicitly teaches that the B1 byte value of the section overhead is calculated in the section terminating equipment (and thus the regenerator) and inserted into the outgoing signal.

Furthermore, since the section overhead "is used for communications between adjacent network elements" and "supports functions such as framing the signal and performance monitoring" of the respective section, it follows that the section overhead within each Section must necessarily be generated by the nodes which terminate that Section. Note

that, within the section overhead, the J0 and B1 bytes (section trace and BIP-8, respectively) are the only defined performance monitoring (PM) fields (see table 3). Buffering and re-inserting this PM information, as suggested by the Examiner, would propagate section trace messaging and parity errors from one section to another. Such a situation precludes per-section performance monitoring, and thus defeats the very purpose of section overhead within the SONET standard.

At page 19, "Regenerator", the Tektronix reference states that "the regenerator ... replaces the section overhead", while the "Line overhead, payload, and path overhead are not altered". Thus the Tektronix reference explicitly teaches that only the Line overhead, payload, and path overhead pass through the regenerator unchanged; the section overhead, on the other hand, is replaced. Merriam-Webster Online (http://www.m-w.com) provides the following definitions for the word "replace":

> **1** : to restore to a former place or position <*replace* cards in a file>
>
> **2** : to take the place of especially as a substitute or successor
>
> **3** : to put something new in the place of <*replace* a worn carpet>
>
> **synonyms** REPLACE, DISPLACE, SUPPLANT, SUPERSEDE mean to put out of a usual or proper place or into the place of another. REPLACE implies a filling of a place once occupied by something lost, destroyed, or no longer usable or adequate <*replaced* the broken window> ....

The Examiner's interpretation of the of the Tektronix reference appears to follow definition 1, " to restore to a former place or position", that is, section overhead data extracted from a received signal is allegedly restored or returned to its original place in the frame prior to transmission toward the next node. However, as noted above, this produces a result in which section trace messaging and parity errors information is propagated from one Section to another, which defeats the purpose of section overhead. Thus it is manifest that the intended meaning of the word "replaced" in the Tektronix reference follows definitions 2 and 3, that is, a new section overhead is generated, and inserted into the frame in place of the section overhead extracted from the received frame. The person of ordinary skill in the art will recall that this is,

in fact, exactly what a regenerator (or other section terminating equipment) does; the BIP-8 value is calculated (as described above) and inserted into outgoing frames; while section trace messaging for the downstream section terminating node is inserted into the J0 byte. To the extent that PM (section trace and parity) information from a received frame is buffered at all, it is never reinserted into outgoing frames.

Thus both the Tektronix reference, and the very well known operation of standard SONET equipment explicitly contradicts the Examiner's assertion that the regenerator reinserts buffered PM information into the section overhead of the outbound frame. Rather, the Tektronix reference explicitly states that the section overhead is replaced. As is very well known in the art (and noted above), this replacement necessarily involves generation of "new" PM information, which is inserted into the signal and transmitted to the next adjacent node.

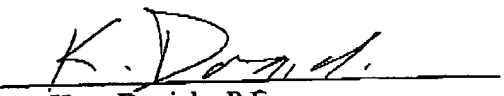
In contrast, the present invention requires that "the PM information [is extracted] from the predetermined location within the signal ...; buffering the extracted PM information; and reinserting the buffered PM information into the predetermined location within the signal prior to transmitting the data signal toward the second end-node." (see claims 1 and 35) It will be seen that, as a result of this operation, the PM information is passed through the intermediate node without being altered, even if the transport overhead is terminated. As described at page 13, line 30 through page 14, line 8 of the originally filed specification, this avoids the problem of loss of continuity of the PM information at line termination equipment, which terminate the transport overhead (TOH). The skilled artisan will appreciate that the present invention also avoids a directly analogous problem of loss of continuity of the PM information at Section terminating equipment, which terminate the section overhead.

The Tektronix reference fails to teach for fairly suggest extracting PM information from a predetermined location within the signal, buffering the extracted PM information, and then re-inserting the buffered PM information into the signal prior to transmission. None of the other known references provide the missing teaching. Accordingly, it is respectfully submitted that the presently claimed invention is clearly distinguishable over the teaching of the cited references, taken alone or in any combination. Thus it is believed that the present application is in condition for allowance, and early action in that respect is courteously solicited.

AMENDMENT UNDER 37 CFR § 1.116
Serial No. 09/597,974

If any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this response, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 19-5113.

Respectfully submitted,



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